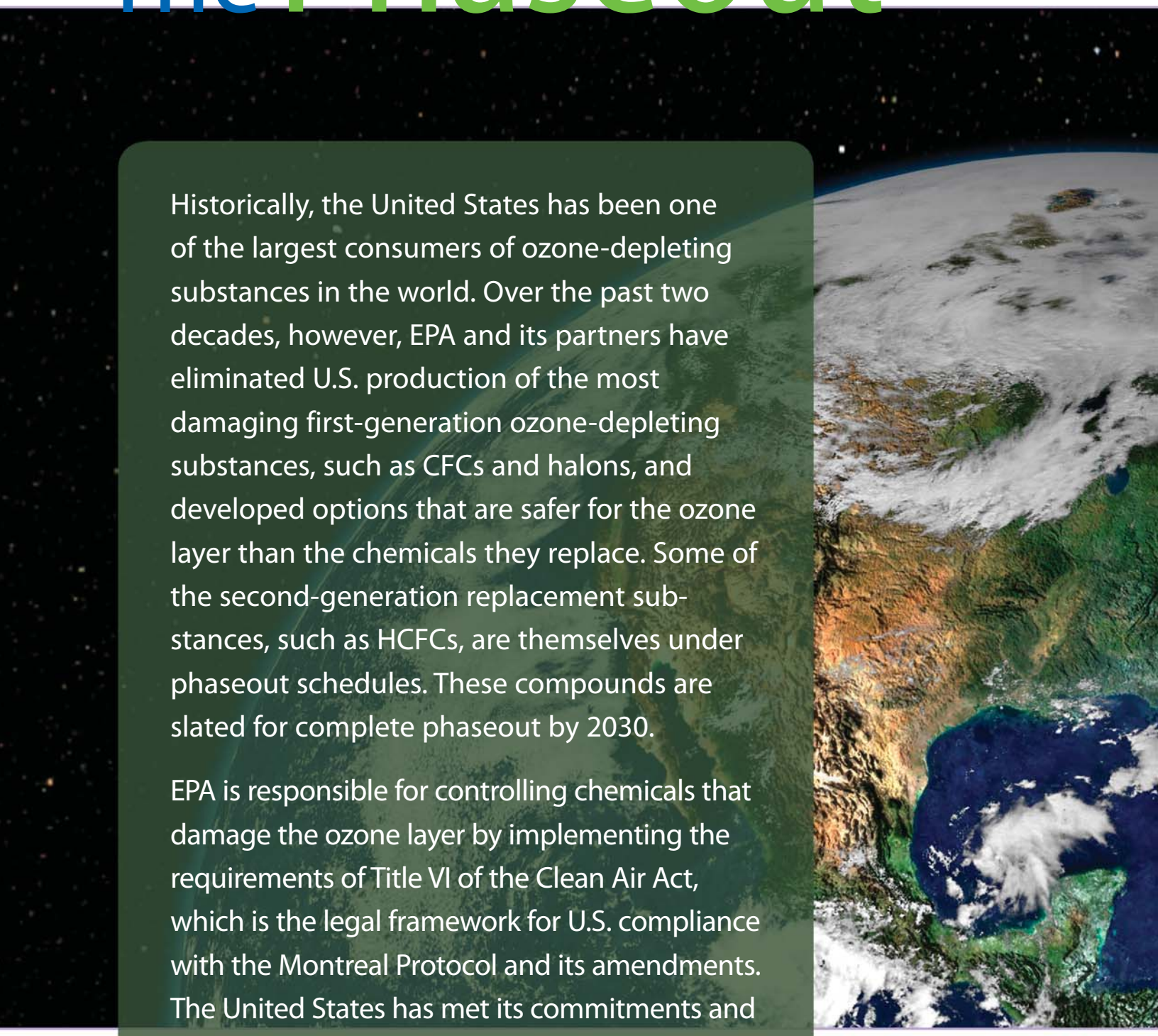
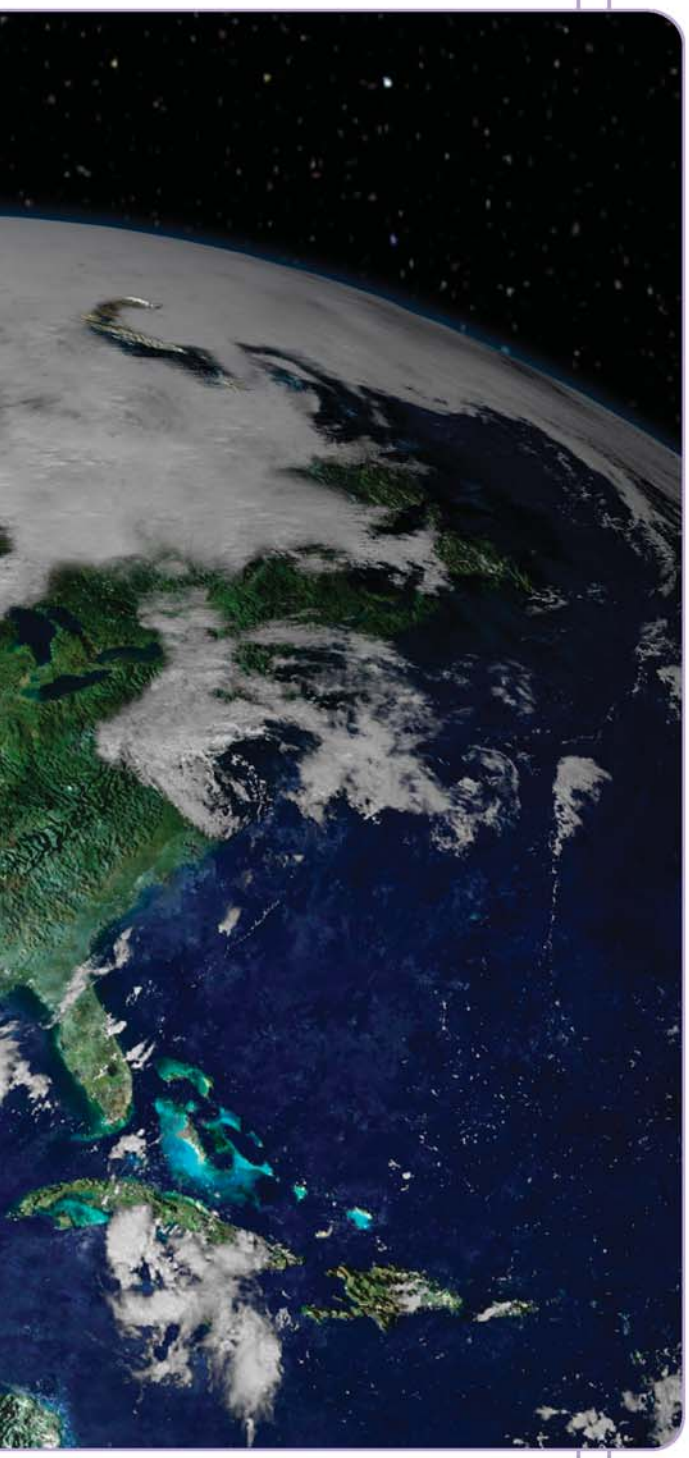
The Phaseout



Historically, the United States has been one of the largest consumers of ozone-depleting substances in the world. Over the past two decades, however, EPA and its partners have eliminated U.S. production of the most damaging first-generation ozone-depleting substances, such as CFCs and halons, and developed options that are safer for the ozone layer than the chemicals they replace. Some of the second-generation replacement substances, such as HCFCs, are themselves under phaseout schedules. These compounds are slated for complete phaseout by 2030.

EPA is responsible for controlling chemicals that damage the ozone layer by implementing the requirements of Title VI of the Clean Air Act, which is the legal framework for U.S. compliance with the Montreal Protocol and its amendments. The United States has met its commitments and deadlines under both the Montreal Protocol and Clean Air Act. We could not have achieved these results without the collaboration of our partners from all sectors of our economy.



U.S. Production of First-Generation Ozone-Depleting Substances Phased Out on Schedule

Chemical Group	Production Phaseout Dates	Deadline Met
Halons	January 1, 1994	✓
Chlorofluorocarbons (CFCs)	January 1, 1996	✓
Carbon tetrachloride	January 1, 1996	✓
Hydrobromofluorocarbons (HBFCs)	January 1, 1996	✓
Methyl chloroform	January 1, 1996	✓
Chlorobromomethane	August 18, 2003	✓
Methyl bromide	January 1, 2005	✓

U.S. Production of Second-Generation Ozone-Depleting Substances Phaseout on Schedule

Chemical Group	Production Phaseout Dates	Deadline Met
Hydrochlorofluoro-carbons (HCFCs)	Cut production 35 percent by January 1, 2004	✓ **(One year ahead of schedule)**
	Cut production 65 percent by January 1, 2010 Cut production 90 percent by January 1, 2015 Cut production 99.5 per-cent by January 1, 2020 Complete phaseout by January 1, 2030	**On track to meet all future requirements**

Spurring Action

The Natural Resources Defense Council (NRDC) played a key role in spurring international treaty talks, domestic regulatory action, and adoption of Clean Air Act provisions targeting ozone-depleting substances. In 1986, NRDC made the first proposal to phase out CFCs and halons over a 10-year period. The environmental community, government, and industry collaborated in developing practical, sector-by-sector schedules for phasing out ozone-depleting chemicals and introducing safer alternatives. As a result, industrialized countries ended halon production by 1994 and nearly all CFC production by 1996. Today, developing countries are also well on the way to eliminating these chemicals.

> "Many people thought that the phase-out of CFCs would be very hard. Yet when countries agreed to the Montreal Protocol, companies found new solutions, discovered business opportunities, and saved money. There's a lesson here for global warming: It will not be as hard as many people think."
>
> —David D. Doniger,
> Policy Director, Climate Center
> Natural Resources Defense Council

Achieving Goals Through Flexibility

Because eliminating or replacing some ozone-depleting substances has presented technical and other challenges, EPA has used flexibility and innovative strategies to achieve the phaseout targets set forth in the Montreal Protocol and the Clean Air Act. For example, EPA has:

- Granted **exemptions** allowed under law for devices or applications for which immediate full-scale replacement is not feasible, such as critical uses of methyl bromide, used to control pests in agriculture and food storage, and essential uses of CFCs for medical devices, such as metered dose inhalers.
- Supported careful management of existing **inventories** of ozone-depleting substances and encouraged their proper destruction.
- Established **tradable permits** for import and production of ozone-depleting substances. The system provides flexibility while also ensuring that the phaseout

schedules for these substances are met. The system also allows imports of ozone-depleting substances to encourage their proper destruction and to reduce the ultimate amount of harmful materials released to the atmosphere.

- Supported efforts to **reclaim and recycle** ozone-depleting substances to reduce emissions while meeting the needs of critical users as they transition to alternatives.

EPA's SNAP Program

The foundation for EPA's regulatory efforts to adopt more ozone-friendly substances is its Significant New Alternatives Policy (SNAP) program. The program was established in 1994 to ensure a smooth transition to safer, practical, and economically feasible alternatives across multiple industrial, consumer, and military sectors.

The SNAP program provides a regulatory framework for EPA to evaluate the health and environmental impacts of alternatives to ozone-depleting substances that companies develop. Under the program, EPA reviews alternatives for a variety of end uses, such as refrigeration, air conditioning, insulation foam, and fire suppression. Based on this evaluation, EPA determines which substitutes are acceptable, which are acceptable with conditions, and which are unacceptable.

Through the SNAP program, EPA has approved more than 300 alternatives for more than 60 industrial, commercial, and consumer end uses.

SELF-CHILLING CANS

Most technology applications reviewed by the SNAP program have broad and immediate market implications. These applications include mobile and stationary air conditioning, domestic and commercial refrigeration, fire suppression, solvent cleaning, and aerosols, to name a few. The SNAP program also reviews new technologies with potentially large market penetration, such as a portable, self-chilling can that would allow consumers to drink cold beverages any time and any place. To work, the coolant must be directly vented to the environment; however, the Clean Air Act prohibits intentional venting of refrigeration devices except where the refrigerants used are found to be safe for the environment. EPA worked to make sure that this new technology could remain viable by allowing the use of recycled carbon dioxide in self-chilling cans, and in 2001 disallowing the use of two HFCs. As a result, emissions equivalent to 8 million tons of carbon per year were avoided, which is roughly equivalent to the emissions associated with burning more than 68 million barrels of oil.

*Note: This figure assumes 1 percent of the beverage can industry had adopted HFC-134a as the refrigerant in self-chilling cans.